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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,137	10/30/2003	Wendy Ng	A5701D1/T41510	3462

7590 09/22/2005

Patent Counsel, M/S 2061
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Legal Affairs Department
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EXAMINER	
KACKAR, RAM N	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/699,137	NG ET AL.	
	Examiner	Art Unit	
	Ram N. Kackar	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6,8-12,17 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,8-12,17 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *none*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/6/2005 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 6, 8-12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran (US Patent No. 5,986,747) in view of applicants admitted prior art (AAPA).

Moran discloses a method for detecting end point in a plasma chamber (column 2, lines 50-60) and teach an analysis chamber 422 (*endpoint detection cell*) arranged in an exhaust line 405 of a processing chamber 402 wherein the analysis chamber 422 (*endpoint detection cell*) is isolated form the exhaust line by a valve 426 for sampling process byproducts. The analysis chamber 422 (*endpoint detection cell*) comprising an excitation source 429 such as a cathode 131B and an anode 131A (Fig. 1) and an optical analyzer 438, wherein the valve 426, the excitation source 429 and the optical analyzer 438 are in communication with a system controller (column 5, line 55 through column 6, line 12 and column 3, lines 43-62). Moran teaches that the sampling of the by products begins after the process is started and the analysis of the by products is done even at a later stage (See program listing Fig 3-306 and 310).

Moran does not disclose that the sampling of the by-product in order to start detection of endpoint is determined by an endpoint qualifier.

Applicants admitted prior art (AAPA) however discloses that (Fig 2, Paragraph 32 and 33) in a conventional chamber process cleaning process the output of a cleaning process sensor becomes linear only after a minimum time (Fig 2-1) and existence of an endpoint qualifier even later (2) and expected endpoint even later (3). It is therefore obvious that detection of end point must begin at least after minimum time so as to ensure accuracy. It is noted that minimum time could also be an endpoint qualifier since time is also an etch parameter. Further, it is obvious that the endpoint qualifier has been established by prior process run.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to start detection (*expose the detector to exhaust*) after endpoint qualifier is reached.

3. Claims 6, 8-12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran (US Patent No. 5,986,747) in view of Tada et al (JP 60062127).

Moran is discussed above.

Moran does not disclose that the sampling of the by-product in order to start detection of endpoint is determined by an endpoint qualifier.

Tada et al disclose a plasma etching process and disclose further that the detection of end point is highly accurate if detection is started at a point of time (t_L) after the plasma light is brought to fixed amount (*an endpoint qualifier*) (Abstract and Fig 1 and Fig 2 t_L). As the output of the sensor is allowed to stabilize to a point where erroneous detection is prevented, accuracy of detection is ensured.

Further, it is obvious that the endpoint qualifier has been established by prior process run.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to start detection (*expose the detector to exhaust*) after endpoint qualifier is reached in order to ensure the reliability of the endpoint.

4. Claims 6, 8-12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran (US Patent No. 5,986,747) in view of Davis et al (US 4891087).

Moran is discussed above.

Moran does not disclose that the sampling of the by-product in order to start detection of endpoint is determined by an endpoint qualifier.

Davis et al disclose a plasma etching process and disclose further that the detection of end point is started at a point of time T(d) after the RF energy is started (Col 8 line 29-Col 9 line 15 and Fig 6) before automatic gain control of the signal.

Further, it is obvious that the endpoint qualifier (*In this instance a time*) is established by prior process run.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to start detection (*expose the detector to exhaust*) after endpoint qualifier is reached in order to ensure the reliability of the endpoint.

Response to Amendment

Applicant's arguments filed 5/6/2005 have been fully considered but they are now moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ram Kackar
Examiner AU 1763